Lukas Chrostowski

List of Publications by Year
in descending order

145 papers	5,488 citations	81900 39 h-index	95266 68 g-index
147 all docs	147 docs citations	147 times ranked	3537 citing authors

#	Article	IF	Citations
1	Silicon Photonics Circuit Design: Methods, Tools and Challenges. Laser and Photonics Reviews, 2018, 12, 1700237.	8.7	323
2	Narrow-band waveguide Bragg gratings on SOI wafers with CMOS-compatible fabrication process. Optics Express, 2012, 20, 15547.	3.4	246
3	Silicon Photonic Biosensors Using Label-Free Detection. Sensors, 2018, 18, 3519.	3.8	237
4	Broadband silicon photonic directional coupler using asymmetric-waveguide based phase control. Optics Express, 2015, 23, 3795.	3.4	224
5	Sub-wavelength grating for enhanced ring resonator biosensor. Optics Express, 2016, 24, 15672.	3.4	187
6	Integrated waveguide Bragg gratings for microwave photonics signal processing. Optics Express, 2013, 21, 25120.	3.4	183
7	Focusing sub-wavelength grating couplers with low back reflections for rapid prototyping of silicon photonic circuits. Optics Express, 2014, 22, 20652.	3.4	180
8	Performance prediction for silicon photonics integrated circuits with layout-dependent correlated manufacturing variability. Optics Express, 2017, 25, 9712.	3.4	152
9	Controlling evanescent waves using silicon photonic all-dielectric metamaterials for dense integration. Nature Communications, 2018, 9, 1893.	12.8	140
10	Ultra-compact, flat-top demultiplexer using anti-reflection contra-directional couplers for CWDM networks on silicon. Optics Express, 2013, 21, 6733.	3.4	128
11	Silicon photonic grating-assisted, contra-directional couplers. Optics Express, 2013, 21, 3633.	3.4	121
12	Wavelength tuning and stabilization of microring-based filters using silicon in-resonator photoconductive heaters. Optics Express, 2015, 23, 25084.	3.4	117
13	Performance of ultra-thin SOI-based resonators for sensing applications. Optics Express, 2014, 22, 14166.	3.4	91
14	Wideband dynamic microwave frequency identification system using a low-power ultracompact silicon photonic chip. Nature Communications, 2016, 7, 13004.	12.8	91
15	Precise control of the coupling coefficient through destructive interference in silicon waveguide Bragg gratings. Optics Letters, 2014, 39, 5519.	3.3	90
16	Broadband 2â€‰Ã—â€‰2 adiabatic 3â€‰â€‰dB coupler using silicon-on-insulator sub-wavelength grating waveguides. Optics Letters, 2016, 41, 3041.	3.3	86
17	Feedback control for microring weight banks. Optics Express, 2018, 26, 26422.	3.4	83
18	Optimized sensitivity of Silicon-on-Insulator (SOI) strip waveguide resonator sensor. Biomedical Optics Express, 2017, 8, 500.	2.9	76

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19	Enhanced Sensitivity of Subwavelength Multibox Waveguide Microring Resonator Label-Free Biosensors. IEEE Journal of Selected Topics in Quantum Electronics, 2019, 25, 1-11.	2.9	75
20	2Ã—2 adiabatic 3-dB coupler on silicon-on-insulator rib waveguides. Proceedings of SPIE, 2013, , .	0.8	74
21	Analytical Modeling of the Transistor Laser. IEEE Journal of Selected Topics in Quantum Electronics, 2009, 15, 594-603.	2.9	72
22	40 GHz Bandwidth and 64 GHz Resonance Frequency in Injection-Locked 1.55 mum VCSELs. IEEE Journal of Selected Topics in Quantum Electronics, 2007, 13, 1200-1208.	2.9	68
23	Ultra-broadband 2â€‰Ã—â€‰2 adiabatic 3â€‰â€‰dB coupler using subwavelength-grating-assisted silicon-on-insulator strip waveguides. Optics Letters, 2018, 43, 1935.	3.3	67
24	Silicon Photonic Circuit Design Using Rapid Prototyping Foundry Process Design Kits. IEEE Journal of Selected Topics in Quantum Electronics, 2019, 25, 1-26.	2.9	62
25	Grating-coupled silicon microring resonators. Applied Physics Letters, 2012, 100, .	3.3	60
26	Contradirectional couplers in silicon-on-insulator rib waveguides. Optics Letters, 2011, 36, 3999.	3.3	57
27	Compact Broadband Directional Couplers Using Subwavelength Gratings. IEEE Photonics Journal, 2016, 8, 1-8.	2.0	56
28	Uniform and Sampled Bragg Gratings in SOI Strip Waveguides with Sidewall Corrugations. IEEE Photonics Technology Letters, 2011, , .	2.5	55
29	Photoconductive heaters enable control of large-scale silicon photonic ring resonator circuits. Optica, 2019, 6, 84.	9.3	55
30	Prospects and applications of photonic neural networks. Advances in Physics: X, 2022, 7, .	4.1	54
31	Improved Semiconductor-Laser Dynamics From Induced Population Pulsation. IEEE Journal of Quantum Electronics, 2006, 42, 552-562.	1.9	49
32	Long-term monitoring in a microfluidic system to study tumour spheroid response to chronic and cycling hypoxia. Scientific Reports, 2019, 9, 17782.	3.3	48
33	Optical signal processing based on silicon photonics waveguide Bragg gratings: review. Frontiers of Optoelectronics, 2018, 11, 163-188.	3.7	44
34	FSR-Eliminated Vernier Racetrack Resonators Using Grating-Assisted Couplers. IEEE Photonics Journal, 2013, 5, 2202511-2202511.	2.0	43
35	FSR-free silicon-on-insulator microring resonator based filter with bent contra-directional couplers. Optics Express, 2016, 24, 29009.	3.4	43
36	Crosstalk Penalty in Microring-Based Silicon Photonic Interconnect Systems. Journal of Lightwave Technology, 2016, 34, 4043-4052.	4.6	43

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37	Ring Resonator Optical Gyroscopesâ€"Parameter Optimization and Robustness Analysis. Journal of Lightwave Technology, 2012, 30, 1802-1817.	4.6	42
38	Universal grating coupler design. Proceedings of SPIE, 2013, , .	0.8	42
39	Crosstalk in SOI Microring Resonator-Based Filters. Journal of Lightwave Technology, 2016, 34, 2886-2896.	4.6	40
40	Scaling up silicon photonic-based accelerators: Challenges and opportunities. APL Photonics, 2022, 7, .	5.7	40
41	Optical Absorption Glucose Measurements Using 2.3-mum Vertical-Cavity Semiconductor Lasers. IEEE Photonics Technology Letters, 2008, 20, 930-932.	2.5	39
42	Michelson Interferometer Thermo-Optic Switch on SOI With a 50-ÂµW Power Consumption. IEEE Photonics Technology Letters, 2015, 27, 2319-2322.	2.5	37
43	Monolithic Injection-Locked High-Speed Semiconductor Ring Lasers. Journal of Lightwave Technology, 2008, 26, 3355-3362.	4.6	36
44	Coupler-apodized Bragg-grating addâ€"drop filter. Optics Letters, 2013, 38, 3068.	3.3	35
45	Label-free biosensing with a multi-box sub-wavelength phase-shifted Bragg grating waveguide. Biomedical Optics Express, 2019, 10, 4825.	2.9	34
46	Apodized Spiral Bragg Grating Waveguides in Silicon-on-Insulator. IEEE Photonics Technology Letters, 2018, 30, 111-114.	2.5	33
47	Automatic Configuration and Wavelength Locking of Coupled Silicon Ring Resonators. Journal of Lightwave Technology, 2018, 36, 210-218.	4.6	33
48	Ring Resonator Wavelength Division Multiplexing Interleaver. Journal of Lightwave Technology, 2011, 29, 2102-2109.	4.6	32
49	Polarization-Independent Mode-Evolution-Based Coupler for the Silicon-on-Insulator Platform. IEEE Photonics Journal, 2018, 10, 1-10.	2.0	32
50	Designing a Microfluidic Device with Integrated Ratiometric Oxygen Sensors for the Long-Term Control and Monitoring of Chronic and Cyclic Hypoxia. Sensors, 2015, 15, 20030-20052.	3.8	30
51	Compact, silicon-on-insulator, series-cascaded, contradirectional-coupling-based filters with >50â€‰â€‰dB adjacent channel isolation. Optics Letters, 2019, 44, 439.	3.3	28
52	Silicon-on-Insulator Modulators Using a Quarter-Wave Phase-Shifted Bragg Grating. IEEE Photonics Technology Letters, 2015, 27, 2331-2334.	2.5	27
53	Significant Crosstalk Reduction Using All-Dielectric CMOS-Compatible Metamaterials. IEEE Photonics Technology Letters, 2016, 28, 2787-2790.	2.5	27
54	System-level integration of active silicon photonic biosensors using Fan-Out Wafer-Level-Packaging for low cost and multiplexed point-of-care diagnostic testing. Sensors and Actuators B: Chemical, 2018, 273, 1610-1617.	7.8	27

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55	Narrow-Band Add-Drop Filter Based on Phase-Modulated Grating-Assisted Contra-Directional Couplers. Journal of Lightwave Technology, 2018, 36, 3760-3764.	4.6	26
56	Automated control algorithms for silicon photonic polarization receiver. Optics Express, 2020, 28, 1885.	3.4	25
57	Narrow-band transmission filter using phase-shifted Bragg gratings in SOI waveguide. , 2011, , .		24
58	Small-signal modeling of the transistor laser including the quantum capture and escape lifetimes. Applied Physics Letters, 2008, 93, .	3.3	23
59	Ultra-Compact Sub-Wavelength Grating Polarization Splitter-Rotator for Silicon-on-Insulator Platform. IEEE Photonics Journal, 2016, 8, 1-9.	2.0	23
60	Integrated optical Dirac physics via inversion symmetry breaking. Physical Review A, 2016, 94, .	2.5	23
61	Optically Injection-Locked VCSEL as a Duplex Transmitter/Receiver. IEEE Photonics Technology Letters, 2008, 20, 463-465.	2.5	22
62	Common-emitter and common-base small-signal operation of the transistor laser. Applied Physics Letters, 2008, 93, .	3.3	22
63	Silicon photonic quantum computing with spin qubits. APL Photonics, 2021, 6, .	5.7	22
64	Broadband, silicon photonic, optical addâ€“drop filters with 3â€‰â€‰dB bandwidths up to 11â€‰â€‰THz. Optics Letters, 2021, 46, 2738.	3.3	21
65	Numerical Study of the Optical Saturation and Voltage Control of a Transistor Vertical-Cavity Surface-Emitting Laser. IEEE Photonics Technology Letters, 2008, 20, 2141-2143.	2.5	20
66	Lithography simulation for the fabrication of silicon photonic devices with deep-ultraviolet lithography. , 2012, , .		19
67	High-performance silicon photonic tri-state switch based on balanced nested Mach-Zehnder interferometer. Scientific Reports, 2017, 7, 12244.	3.3	19
68	Compact wavelength- and bandwidth-tunable microring modulator. Optics Express, 2019, 27, 26661.	3.4	19
69	Nano-engineered lenses. Nature Photonics, 2010, 4, 413-415.	31.4	18
70	Multichannel photonic Hilbert transformers based on complex modulated integrated Bragg gratings. Optics Letters, 2018, 43, 1031.	3.3	18
71	Spectral Design of Silicon Integrated Bragg Gratings: A Tutorial. Journal of Lightwave Technology, 2021, 39, 712-729.	4.6	18
72	Computational Lithography for Silicon Photonics Design. IEEE Journal of Selected Topics in Quantum Electronics, 2020, 26, 1-8.	2.9	17

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73	Apodized Focusing Fully Etched Subwavelength Grating Couplers. IEEE Photonics Journal, 2015, 7, 1-10.	2.0	16
74	Roomâ€temperature operation of transistor verticalâ€cavity surfaceâ€emitting laser. Electronics Letters, 2013, 49, 208-210.	1.0	15
75	Crosstalk limitations of microring-resonator based WDM demultiplexers on SOI. , 2015, , .		15
76	Effects of backscattering in high-Q, large-area silicon-on-insulator ring resonators. Optics Letters, 2016, 41, 1538.	3.3	15
77	Polymer modulators in silicon photonics: review and projections. Nanophotonics, 2022, 11, 3855-3871.	6.0	14
78	Photonic Hilbert transformers based on laterally apodized integrated waveguide Bragg gratings on a SOI wafer. Optics Letters, 2016, 41, 5039.	3.3	13
79	Monitoring and automatic tuning and stabilization of a 2Ã—2 MZI optical switch for large-scale WDM switch networks. Optics Express, 2019, 27, 24747.	3.4	12
80	Narrow-band, polarization-independent, transmission filter in a silicon-on-insulator strip waveguide. Optics Letters, 2019, 44, 847.	3.3	11
81	Invited Paper: Design and modeling of a transistor vertical-cavity surface-emitting laser. Optical and Quantum Electronics, 2011, 42, 659-666.	3.3	10
82	Ultra-high Q multimode waveguide ring resonators for microwave photonics signal processing. , 2015, , .		9
83	Contra-directional pump reject filters integrated with a micro-ring resonator photon-pair source in silicon. Optics Express, 2021, 29, 25173.	3.4	9
84	Characterization and compensation of apodization phase noise in silicon integrated Bragg gratings. Optics Express, 2019, 27, 9516.	3.4	9
85	Silicon-on-insulator Bragg gratings fabricated by deep UV lithography. , 2010, , .		7
86	Large-area, high-Q SOI ring resonators. , 2014, , .		7
87	Apodization of Silicon Integrated Bragg Gratings Through Periodic Phase Modulation. IEEE Journal of Selected Topics in Quantum Electronics, 2020, 26, 1-15.	2.9	7
88	Introduction to Issue on Semiconductor Lasers. IEEE Journal of Selected Topics in Quantum Electronics, 2015, 21, 6-8.	2.9	6
89	Comparison of photonic 2×2 3-dB couplers for 220 nm silicon-on-insulator platforms. , 2015, , .		5
90	Automated Adaptation and Stabilization of a Tunable WDM Polarization-Independent Receiver on Active Silicon Photonic Platform. IEEE Photonics Journal, 2020, 12, 1-11.	2.0	5

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91	Distributed-grating Wavelength Demultiplexer in SOI. , 2006, , .		4
92	Simulation of coupling between parallel SOI nanowaveguides and its dependence on temperature. , 2009, , .		4
93	Silicon photonic polarization beamsplitter and rotator for on-chip polarization control. , 2016, , .		4
94	Measuring on-chip waveguide losses using a single, two-point coupled microring resonator. Optics Express, 2020, 28, 10225.	3.4	4
95	Single-band add-drop filters using anti-reflection, contra-directional couplers. , 2012, , .		3
96	Silicon photonic Bragg grating modulators. , 2014, , .		3
97	A wavelength-selective polarization rotating reflector using a partially-etched asymmetric Bragg grating on an SOI strip waveguide. , 2015, , .		3
98	Silicon Electronics-Photonics Integrated Circuits for Datacenters. , 2016, , .		3
99	Advances in Silicon Photonic Sensors Using Sub-Wavelength Gratings. , 2019, , .		3
100	Stable and Reduced-Linewidth Laser Through Active Cancellation of Reflections Without a Magneto-Optic Isolator. Journal of Lightwave Technology, 2021, 39, 6215-6230.	4.6	3
101	40 GHz Bandwidth and 64 GHz Resonance Frequency in Injection-Locked 1.55 um VCSELs. , 2006, , .		2
102	Modelling the effect of the feedback on the small signal modulation of the transistor laser. , 2010, , .		2
103	2.5 THz bandwidth on-chip photonic fractional Hilbert transformer based on a phase-shifted waveguide Bragg grating. , 2013, , .		2
104	Analytical modeling for ultra-high-speed microring modulators with electrical and optical dynamics. , 2014, , .		2
105	Frequency agile microwave photonics notch filter based on a waveguide Bragg grating on silicon. , 2014, , .		2
106	Intraband crosstalk of SOI microring resonator-based optical add-drop multiplexers. , 2015, , .		2
107	A low-power biasing scheme for silicon-on-insulator traveling-wave modulators. , 2015, , .		2
108	Optical Add-drop Filters using Cladding-modulated Sub-wavelength Grating Contra-directional Couplers for Silicon-on-Insulator Platforms. , 2019, , .		2

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109	Effect of lithography on SOI, grating-based devices for sensor and telecommunications applications. , 2019, , .		2
110	SiEPICfab: the Canadian silicon photonics rapid-prototyping foundry for integrated optics and quantum computing. , 2021, , .		2
111	Fabry-Perot Cavity Design in AlGaAs/GaAs using a Photonic Crystal Slab for a Resonant Cavity Detector. , 2006, , .		1
112	Dual-Resonance Frequency Response in Injection-Locked 1.55 Â¿m VCSELs. , 2007, , .		1
113	Silicon Nanophotonics Fabrication: An innovative graduate course. , 2010, , .		1
114	Multi-period Bragg gratings in silicon waveguides. , 2013, , .		1
115	Widely tunable microwave photonics notch filter based on a waveguide Bragg grating on silicon. , 2014, , .		1
116	Compact and broad band directional coupler for sub-wavelength grating SOI components. , 2014, , .		1
117	Wide FSR silicon-on-insulator microring resonator with bent couplers. , 2015, , .		1
118	Broadband Polarization Splitter-Rotator using Sub-wavelength Grating Assisted Adiabatic Waveguides. , 2018, , .		1
119	Design of Silicon Integrated Bragg Gratings for Microwave Photonics Signal Processing. , 2019, , .		1
120	Widely Tunable, Fast Scanning, Narrow Linewidth, Mid-IR Source Centred at 2.9 Um. , 2020, , .		1
121	Modified Optical Heterodyne Down-Conversion System for Measuring Frequency Responses of Wideband Wavelength-Sensitive Electrooptical Devices. IEEE Photonics Technology Letters, 2006, 18, 2183-2185.	2.5	0
122	Resonant Grating Based Fabry-Perot Cavity in AlGaAs/GaAs. , 2006, , .		0
123	Explanation for significantly improved VCSEL modulation bandwith in strong optical injection experiments. , 2006, , .		0
124	Finite-Size Resonant Sub-Wavelength Grating High Reflectivity Mirror. , 2006, , .		0
125	A Novel Method for Fabrication of Free Standing Subwavelength Gratings in Gaas/Algaas. , 2006, , .		0
126	Small-signal modeling of the transistor laser in common-emitter and common-base configurations. , 2008, , .		0

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127	Optically injection-locked VCSEL for bi-directional optical communication. , 2008, , .		0
128	Interference effects on the frequency response of injection-locked VCSELs. , 2010, , .		0
129	Self-consistent modeling of a transistor vertical-cavity surface-emitting laser. , 2010, , .		0
130	Generation of steerable continuous-wave terahertz radiation using large-area photomixer. , 2012, , .		0
131	Sensitivity analysis of thin waveguide SOI ring resonators for sensing applications. , 2013, , .		0
132	Fabrication and experimental characterization of cascaded SOI micro-rings for highthroughput label-free molecular sensing. , 2013, , .		0
133	Microring modulator using drop-port phase interference. , 2014, , .		0
134	Measurement of optical losses in silicon photonic contra-directional couplers. , 2015, , .		0
135	An FSR-free silicon resonator reflector using a contra-directional coupler and a Bragg reflector. , 2015, , .		0
136	Vernier assisted Mach-Zehnder modulator. , 2016, , .		0
137	Improvement of silicon waveguide transmission by advanced e-beam lithography data fracturing strategies. Journal of Vacuum Science and Technology B:Nanotechnology and Microelectronics, 2017, 35, 06G504.	1.2	0
138	FSR-Free Microring Coupling-Based Modulator. , 2018, , .		0
139	Widely Tunable, High-Q Two-Dimensional Photonic Crystal Cavities for cQED Applications. , 2018, , .		0
140	FSR-Free Microring-based Modulator. , 2018, , .		0
141	Compact Contra-Directional-Coupler-Based Filters for CWDM Applications. , 2018, , .		0
142	System-Level Integrated Active Silicon Photonic Biosensor for Detecting Small Molecule Interactions. , 2018, , .		0
143	Wideband, Flat-Top, SOI Filter using an Apodized Sub-Wavelength-Grating Contra-Directional Coupler. , 2019, , .		0
144	Contra-Directional Couplers as Pump Rejection and Recycling Filters for on-Chip Photon-Pair Sources. , 2019, , .		0

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145	Phase-shifted Bragg grating-based Mach-Zehnder Interferometer Sensor using an Intensity Interrogation Scheme. , 2020, , .		0